

# THE SIGNIFICANT THREAT POSED BY CLIMATE CHANGE

## A AMEAÇA SIGNIFICATIVA REPRESENTADA PELAS MUDANÇAS CLIMÁTICAS

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### Abstract

This paper aims to examine and analyse global news articles on natural disasters, focusing on United Nations Sustainable Development Goal 13: Climate Action, and show the interconnection with other SDGs. The Industrial Revolution led to urban migration and rapid population growth in cities. This shift has increased agricultural and industrial activities, boosting greenhouse gas emissions. As a result, deforestation has intensified for agriculture and urban expansion, while fossil fuel use has risen to meet higher energy demands (Wadanambi et al., 2020). The most often used environmental term, Climate Change, describes the shift in the current climate primarily caused by human activity (Trenberth, 2018). Although not new, it is arguably one of the most significant environmental problems that the World's population is currently experiencing. Growing public engagement in the conversation about climate change and the resulting understanding of the dangers and challenges associated with the subject has been addressed and problematized from several viewpoints (Rahman, 2013). Using a range of methodologies, the results highlighted the interconnection of SDGs, which demonstrated the need for collective progress to ensure global benefits and mitigate risks. Achieving them by 2030 is challenging, especially with growing climate impacts. Developing nations face heightened vulnerability due to limited resources, poor infrastructure, and inadequate disaster preparedness.

Keywords: climate change, extreme weather events, ecosystem, SDG's (Sustainable Development Goals).

### Resumo

*Este artigo tem como objetivo examinar e analisar notícias globais sobre desastres naturais, com foco no Objetivo de Desenvolvimento Sustentável 13 da ONU: Ação Climática, e demonstrar sua interconexão com outros ODS. A Revolução Industrial levou à migração urbana e ao rápido crescimento populacional nas cidades. Essa mudança aumentou as atividades agrícolas e industriais, elevando as emissões de gases de efeito estufa. Como resultado, a desflorestação se intensificou para dar lugar à agricultura e à expansão urbana, enquanto o uso de combustíveis fósseis cresceu para atender à maior demanda por energia (Wadanambi et al., 2020). O termo ambiental mais frequentemente utilizado, Mudança Climática, descreve a alteração do clima atual, causada principalmente pela atividade humana (Trenberth, 2018). Embora não seja um fenômeno novo, é, sem dúvida, um dos problemas ambientais mais significativos enfrentados pela população mundial. O crescente envolvimento público no debate sobre a mudança climática e a consequente compreensão dos riscos e desafios associados ao tema têm sido abordados e problematizados sob diversas perspectivas (Rahman, 2013). Utilizando uma variedade de metodologias, os resultados destacaram a interconexão entre os ODS, demonstrando a necessidade de um progresso coletivo para garantir benefícios globais e mitigar riscos. Alcançá-los*

*até 2030 é um desafio, especialmente diante do aumento dos impactos climáticos. As nações em desenvolvimento enfrentam maior vulnerabilidade devido a recursos limitados, infraestrutura precária e preparação inadequada para desastres. Palavras-chave: mudança climática, eventos climáticos extremos, ecossistema, ODS (Objetivos de Desenvolvimento Sustentável).*

### Introduction

The United Nations 2030 Agenda for Sustainable Development is a global plan to create a sustainable future through the 17 Sustainable Development Goals (SDGs). Achieving these SDGs requires coordinated efforts from governments, organisations, and society worldwide (Saxena et al., 2021). This paper will discuss and analyse global news articles covering natural disasters in the context of UN SDG 13: Climate Action (take urgent action to combat climate change and its impacts) and its interconnected relationship with other UN SDGs. Employing a variety of methodologies, the result section will identify how countries deal with environmental, social, and economic challenges and the implications of these events for achieving the SDGs. The Industrial Revolution began around 1750 and rapidly gained momentum in the past century. Substantial global population and economic growth have driven a sharp rise in fossil fuel consumption (Hall, 2016). Burning fossil fuels like coal releases waste gases, primarily carbon dioxide (CO<sub>2</sub>), into the air. Excessive CO<sub>2</sub> emissions are warming the atmosphere, causing global climate disruption. Scientists agree that human-driven climate change from fossil fuel use is an environmental threat (Soeder and Soeder, 2021). Each year, climate change reveals itself through increasingly severe extreme weather events, such as heatwaves, droughts, wildfires, and intense rainfall that causes flooding.

### Literature Review

17 Sustainable Development Goals (SDGs) were agreed upon by the UN General Assembly in September 2015, combining the development and environmental agendas, superseding the Millennium Development Goals (MDGs) (Bexell and Jönsson, 2017). Achieving the SDGs is crucial because failing to achieve them could subject humanity to significant global catastrophic and existential risks. Among these, SDG 13 on Climate Action is the most critical. The interconnected nature of all SDGs underscores the importance of their collective progress in steering the global system toward positive outcomes and mitigating the rising levels of risk (Cernev and Fenner, 2020).

Cities have historically been a refuge from natural disasters and barriers against climate change. However, they are now best described as risk and disaster regions (Wamsler, Brink and Rivera, 2013). Worldwide, cities suffer from the rising frequency and severity of disasters caused by climate change (Tong, 2021).

EM-DAT is a database that tracks over 26,000 mass disasters globally, dating from 1900 to the present. It compiles information from a wide range of sources, including United Nations agencies, NGOs, reinsurance firms, research institutions, and media outlets (Clarke et al., 2022). Table 1 provides a global summary of this data.

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Table 1 - The direct effects on physical health of various disaster types from 2000 to 2020, as documented by EMDAT, as well as the contribution of climate change to each hazard (Source: Clarke et al., 2022).

Hazard	Observed direct impacts			Attributable influence of climate change on hazard severity/likelihood (confidence level)
	Deaths	Injured	Total affected	
Heatwaves	157 000	193 000	320 000	Increase (high)
Cold waves and severe winter conditions	14 900	1.86 million	96.1 million	Decrease (high)
Floods	111 000	304 000	1.66 billion	Increase (medium)
Droughts	21 300	N/A	1.44 billion	Increase (medium)
Wildfires	1570	7260	3.38 million	Increase (medium)
Storms	201 000	337 000	773 million	Rainfall increase (high) Other impacts no change (low)

**Methodology**

This research gathers current information on climate change and extreme weather events using a comparative analysis of recent articles and headlines from reliable sources, including The Guardian and the BBC. SWOT analysis (See Table 2) of the event's strengths and weaknesses for achieving SDG 13 and potential opportunities. Every article examines which SDGs it relates to and their connection to UN SDG 13: Climate Action. The study examines the positive and negative effects of global sustainability efforts. A cognitive map was created (See Figure 1), visually illustrating the international and interconnected impact of the identified concerns. Photo analysis was used to show the devastation of recent Global disasters connected to extreme weather events and their impact on local communities. A visual collage (refer to Figure 2) was created, compiling images from BBC News that illustrate the challenges highlighted in the articles. Provides a graphic picture of the worldwide effects of climate change, and the urgent necessity for executing actions related to SDG 13.

<p><b>STRENGTHS</b></p> <p>Growing public awareness and concern about climate change led to more activism and demand for sustainable practices.</p> <p>Innovations in renewable energy and sustainable technologies provide solutions to reduce carbon footprints.</p>	<p><b>WEAKNESS</b></p> <p>There are disparities between the global North and the global South. Vulnerable communities often lack the resources to adapt to climate change, leading to inequalities in impact and response.</p> <p>Climate change can be a divisive political issue, hindering effective policymaking and action.</p>
<p><b>OPPORTUNITIES</b></p> <p>Global cooperation: Climate change presents an opportunity for countries to collaborate on solutions, fostering international agreements like the Paris Accord.</p> <p>Economic Growth and Green Sectors: Transitioning to renewable energy and sustainable practices can create jobs and stimulate economic growth.</p>	<p><b>THREATS</b></p> <p>Extremes Weather Events: Climate change increases the frequency and severity of natural disasters, posing risks to human life and infrastructure.</p> <p>Biodiversity Loss: Environmental changes threaten ecosystems and species, which can have long-term impacts on food security and health.</p>

Table 2 - Using SWOT analysis helps in identifying and evaluating strengths, weaknesses, opportunities, and threats (Source: author, 2024).



Figure 1 - A cognitive map was created to illustrate the global and interconnected significance of the topics covered in the news items examined for this research (Source: author, 2024).

**Results**

News article BBC (2024a) writes that The World Weather Attribution Group findings said one four-day period produced the most precipitation recorded in central Europe, indicating that climate change has doubled the likelihood of extreme storms like those caused by Storm Boris. Global temperatures have risen by 1.25°C due to human activity, and if present emissions rates continue, they will go above 1.5°C in less than ten years (Matthews and Wynes, 2022). The Paris Agreement wants to reduce global warming to below 2. °C and take actions to restrict it to 1.5 °C above pre-industrial levels (Warren et al., 2022). SDG 13 aims to combat climate change by embedding climate strategies in national policies, an objective that aligns closely with SDG 7's goal to increase renewable energy. Nations should boost annual budgets for clean energy projects, fostering technology innovation for higher renewable energy production and use (He et al., 2023). SDG 9 emphasises technological progress for developing and deploying renewable energy sources like solar, wind, and hydropower, reducing dependence on fossil fuels and lowering greenhouse gas emissions.

BBC (2024a) and (2024b) discuss recent floods in Brno, Czech Republic, and Nysa, Poland. Torrential rains in Spain have led to destruction, isolating towns without essential supplies, and the nation has deployed its largest-ever peacetime rescue effort (BBC, 2024c). Prime Minister Pedro Sánchez confirmed over 211 deaths, though the toll may increase. Many people remain displaced, searching for loved ones, or awaiting aid. Search and rescue teams, including 1,700 soldiers, are focused on areas like Valencia, where floodwaters trapped people in underground spaces. Climate experts note the floods, intensified by a year-long drought, left the ground unable to absorb rainfall effectively, and climate change may have contributed to the rainfall's severity. All three articles highlight the urgency of addressing SDG 13 climate action to prevent worsening weather events.



Figure 2 - A photo collage created by compiling images that illustrate the issues highlighted in the news items examined for this research (Source: author, 2024).



The mayor's evacuation order in Nysa (BBC, 2024b) highlighted effective emergency responses and community awareness. Research and development under SDG 9 are vital for climate resilience, and advancing technologies offer accurate flood predictions, real-time monitoring, and insights for efficient urban flood management. They have proven effective in preparing for these events and saving lives during the recent floods. Ongoing investment in research and technology is essential for implementing adaptive, data-driven solutions. Global collaboration is needed as climate change and urban flooding transcend borders, demanding collective action (Dharmarathne *et al.*, 2024). Criticisms of Government response and increased looting in Spain indicate challenges in crisis governance and public trust (SDG 16: Peace, Justice, and Strong Institutions). The mobilization of soldiers, volunteers, and police underscores the value of partnerships for disaster response (SDG 17: Partnerships for the Goals). All three articles showed the negative impact of infrastructure damage and displacement, which strain local resources. Each year, millions are displaced globally by climate-related disasters, and this trend is to rise as climate change increases (Kolmannskog and Trebbi, 2010).

All three articles identify that SDGs 13 and 6 (Clean Water and Sanitation) are interconnected since sustainable water access relies on climate resilience. Floods are the leading cause of global waterborne disease outbreaks. Flooding and heavy rainfall can transport pathogens and disrupt water and sanitation infrastructure, changing human exposure patterns (Levy *et al.*, 2016). Flood water is liable to be faeces-contaminated, posing potential health risks to people exposed to pathogens in these waters (Ten Veldhuis *et al.*, 2010), leading to warnings against drinking tap water. Emergency responses delivering clean water to isolated communities were vital in maintaining access to safe drinking water. The importance of resilient infrastructure to ensure long-term water quality, sanitation, and health is linked to SDG 3: Good Health and Well-being. Reports indicate significant health impacts, including fatalities, injuries, and mental health issues. Health deterioration may arise from disruptions in medical services and stress associated with clean-up and restoration efforts (Zhong *et al.*, 2018). Quick evacuations (BBC, 2024b) and safety measures reduced health risks

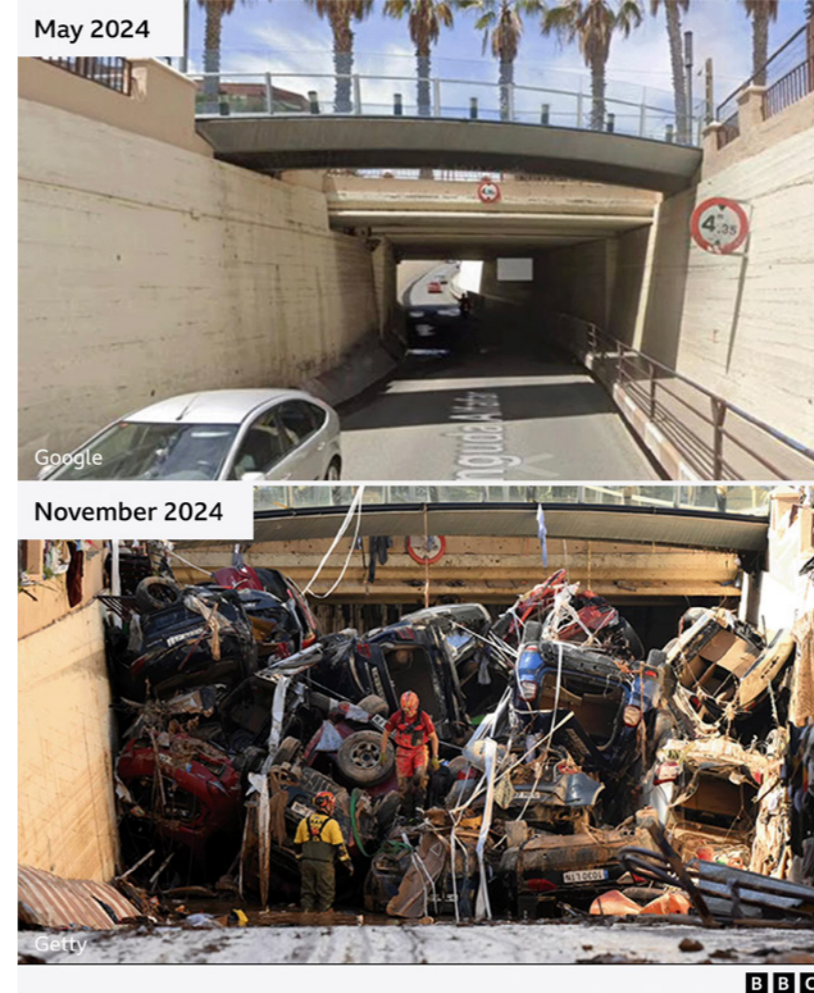


Figure 3 - Before and after image shows the tunnel between the communities of Benetusser and Alfafar in Valencia was obstructed by numerous vehicles swept away by the flood (Source: BBC, 2024d).

and ensured vulnerable populations received emergency healthcare, but pressure on healthcare systems challenges long-term recovery.

Flooding impacts ecosystems, as shown by Storm Boris, which connects SDGs 13 and 15 (Life on Land). Heavy rainfall causes soil erosion, habitat destruction, and water quality decline, threatening local flora and fauna. This damage risks long-term biodiversity loss, stressing the need for sustainable land and water management to protect ecosystems. Socioeconomic impacts in areas like Romania, where losing homes and livelihoods deepen existing inequalities, particularly for the most impoverished and vulnerable (Birkmann *et al.*, 2022), linking climate action to SDGs 1 (No Poverty) and 10 (Reduced Inequalities). Tourism is a significant global economic sector that relies heavily on the state of the natural environment, making it vulnerable to the risks posed by climate change (Scott, Hall and Gössling, 2019). Business disruptions highlight the need for economic recovery to restore jobs (SDG 8: Decent Work and Economic Growth).

News article BBC (2024e) discusses floods in Nepal and the BBC (2024f) article highlights one of the most vulnerable countries, Niger. Throughout the past 20 years, the sub-Saharan region has been affected by unexpected floods (Fiorillo *et al.*, 2018). Both highlight complex issues that impact multiple SDGs, primarily through negative outcomes related to SDG 13. In Nepal, the destruction of homes and property has left families in precarious situations, intensifying pre-existing poverty. Similarly, in Niger, the flooding disrupts livelihoods, especially for those dependent on agriculture, thereby exacerbating economic vulnerabilities. Climate change can significantly hinder efforts to reduce poverty, demonstrating the critical relationship between SDG 13 and SDG 1.

In Nepal, injuries and deaths, coupled with damage to healthcare infrastructure, present long-term health challenges. Waterborne diseases and disruptions to medical services pose a substantial risk to community health. SDG 6 seems unattainable, particularly for underdeveloped nations like Nepal. Climate change is an obstacle that threatens the





Figure 4 - Satellite imagery reveals the damage to road and railway bridges (before and after) caused by the Valencia floods. Dozens of meters of train tracks were destroyed. Service between Madrid and Valencia has been stopped until the lines are rebuilt (Source: BBC, 2024d). The floods destroyed homes and disrupted critical infrastructure like roads and railways, exposing vulnerability to environmental disasters.

water and sanitation goals (Sharma *et al.*, 2021). In Niger, overcrowded shelters and damaged infrastructure similarly elevate the risk of disease outbreaks, showing how climate events can impede progress toward SDG 3 and the need for robust healthcare systems that can withstand climate-induced disruptions. Flooding in Niger directly disrupts education by delaying the school year. This interruption has cascading effects on students' learning outcomes, which can impact the region's future workforce and socioeconomic stability. Such educational setbacks link SDG 13 to the achievement of SDG 4 (Quality Education), demonstrates the profound influence climate-related disasters have on human capital development.

Figure 6 - Over 2,000 people had to be rescued in Nepal (Source: BBC 2024e).

The impact of flooding on agriculture in Niger underscores how climate change can damage food systems. Disrupted food supply chains and potential crop failures threaten food security and exacerbate hunger SDG 2 (Zero Hunger). Government efforts like grain distribution offer short-term relief, but sustainable, long-term solutions require climate-resilient agricultural practices. The flooding in Niger and Nepal, particularly in urban areas like Kathmandu, reveals the need for urban planning that highlights the importance of resilient infrastructure as part of sustainable urban development (SDG 11). Financing initiatives for developing climate-resilient infrastructure and green technologies enable countries, especially developing nations, to make sustainable choices (SDG 9 goals related to infrastructure and innovation) and support SDG 13 by fostering a climate-resilient economy. For Nepal to effectively achieve its SDGs, increased integration will assist in reducing risks, preparing and planning for, absorbing and responding to, and recovering from multi-hazard threats by making better use of restricted resources (Pradhan and Chauhan, 2020). The impact of increasing flooding incidents means Niger faces numerous complex and interconnected problems that impede progress towards the primary SDGs (Adamou *et al.*, 2021).

The Amazon drought highlighted in the BBC (2024g) and The Guardian (2024) reflects a direct impact of climate change, highlighting the need for urgent climate action (SDG 13). President Lula's engagement and acknowledgment of the crisis signal a potential shift toward prioritising climate policies at national and international levels. The reduced



water levels in major rivers like the Madeira and the Amazon affect local communities, such as those in Manicure. A significant tributary of the Amazon River, the Madeira River frequently experiences extreme drought and flooding (Laureanti *et al.*, 2024). The drought worsens public health and sanitation by limiting access to clean water, essential for daily life and well-being. There is an opportunity for world governments to develop policies that enhance water use efficiency and focus on conserving freshwater sources, which could make significant progress toward SDG 6 (clean water and sanitation).

Figure 7 - Due to the dried-up rivers in the Amazon, locals have had to transport drinking water on their shoulders (Source: BBC 2024g).

The ongoing deforestation and fires in the Amazon, Cerrado, and Pantanal biomes critically impact biodiversity and ecosystems, directly addressing SDG 15, which focuses on the sustainable use of terrestrial ecosystems and halting biodiversity loss. These biomes are crucial to regulating the global climate, preserving biodiversity, and sustaining indigenous and rural communities. Disruption of food supplies threatens food security (SDG 2) for rural and indigenous communities like Sararé, who face the threat of hunger. Inland water transport is frequently disrupted by drought conditions, which can isolate local inhabitants and restrict access to vital services (Santos de Lima *et al.*, 2024). Fishing, a key source of food and livelihood, is hampered by the low water levels, making it difficult for boats to navigate and for communities to access sufficient food. Fires and water shortages also impact agriculture, leading to potential food insecurity and hunger in vulnerable areas. The crisis may encourage more sustainable agricultural practices and resilience-building in food systems to ensure communities can recover and integrate climate adaptation into agricultural planning, contributing to food security in the long run.

The health impacts of the Amazon crisis reflect a challenge to SDG 3, which aims to ensure healthy lives and promote well-being. Smoke from the fires caused by the drought affects air quality in cities like Rio de Janeiro and São Paulo. The resulting pollution poses serious health risks, including respiratory problems, increased hospitalizations, and long-term health issues. The composition of wildfire smoke is distinct from that of other air pollution sources (Black *et al.*, 2017). The public health risks associated

Figure 5 - In the Romanian town of Slobozia Conachi, villagers rescue a woman out of rising floodwaters (Source: BBC, 2024a).





Figure 6 - Over 2,000 people had to be rescued in Nepal (Source: BBC 2024e).

with environmental degradation might prompt world governments to improve air quality standards and invest in healthcare services capable of addressing future climate-related health crises. Climate change will worsen health disparities, particularly for those countries already vulnerable due to poverty, malnutrition, and exposure to natural disasters (Patz *et al.*, 2007). International support and policy collaboration can play a crucial role in supporting Brazil's conservation goals, especially given the global importance of the Amazon in climate regulation. The articles argue for a comprehensive response involving adaptation, stronger infrastructure, and social support to mitigate climate disasters and protect vulnerable groups. UN SDGs are driven by partnerships that combine strengths for maximum impact (Leal Filho *et al.*, 2024).

### Conclusion

Central European flooding caused by storm Boris and Amazon droughts highlights the link between the SDGs and climate change. Although infrastructure and disaster planning have improved, climate change increases the dangers to ecosystems and communities. The severe floods and landslides in Nepal and flooding in Niger demonstrate the vulnerability of economically disadvantaged communities, increasing poverty, health risks, and instability. Those who have contributed the least to climate change are often the most at risk from shifting weather patterns. Developing nations are particularly vulnerable, as they frequently lack the resources, infrastructure, and disaster-readiness systems to cope with these impacts (Klinsky *et al.*, 2014), which will substantially impede their ability to accomplish the SDGs due to their limited adaptability (Thapa, Mainali and Dhakal, 2023).

All countries must overcome many problems to attain the SDGs by 2030, particularly when the world faces more impacts of climate change and greater frequency of floods (Kimuli *et al.*, 2021). The world community refuses to make the complete commitment necessary to reverse the climate problem, so it continues unabated. Our political leaders, as supported by our preferences as consumers and voters, tend to make decisions that prioritise immediate interests over long-term ones and delay necessary behavioural adjustments, even when doing so is obviously against our long-term benefits. Because time is running out, the issue will eventually be “too acute, have had too much impact,



Figure 7 - Due to the dried-up rivers in the Amazon, locals have had to transport drinking water on their shoulders (Source: BBC 2024g).

or be too late to stop or reverse” (Levin *et al.*, 2012). Climate change continues to dominate global headlines as its impacts escalate “Climate a more fundamental threat than terror – Lammy” (BBC, 2024h).

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